

OCD-ARTESIA

FORM APPROVED
OMB NO 1004-0137
Expires July 31, 2010UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

5 LEASE DESIGNATION AND SERIAL NO

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

NMNM-31636

1a Type of Well ☐ Oil Well ☒ Gas Well ☐ Dry ☐ Other		6 INDIAN ALLOTTEE OR TRIBE NAME	
b Type of Completion ☒ New Well ☐ Workover ☐ Deepen ☐ Plug Back ☐ Drift Resvr		7 UNIT AGREEMENT	
Other _____		8 FARM OR LEASE NAME	
2 Name of Operator Marbob Energy Corporations		Mule 23 Federal #1	
3 Address P.O. Box 227 Artesia, NM 88211-0227		9 API WELL NO 30-015-35846	
3a. Phone No (include area code) 575-748-3303		10 FIELD NAME Strawn, Walnut Canyon	
4 Location of Well (Report location clearly and in accordance with Federal requirements)* At surface 550' FSL & 2215' FWL, Unit N (SESW) At top prod Interval reported below 706' FSL & 1895' FWL, Unit N (SESW)		11 SEC T. R. M OR BLOCK AND SURVEY OR AREA 23 T 24S R 25E	
12 COUNTY OR PARISH Eddy		13 STATE NM	
14 Date Spudded 7/28/08		15 Date T D Reached 9/12/08	
16 Date Completed 12/10/08 ☐ D & A ☒ Ready to Prod		17 ELEVATIONS (DF, RKB, RT, GR, etc)* 4042' GR 4059' KB	
18 Total Depth MD 12300' TVD 12256'		19 Plug back T D MD 11495' TVD 11451'	
20 Depth Bridge Plug Set MD 11530' TVD 11486'		21 Type Electric & other Logs Run (Submit a copy of each) DLL, DSN	
22 Was well cored? ☒ No ☐ Yes (Submit analysis)		Was DST run? ☒ No ☐ Yes (Submit report)	
Directional Survey? ☐ No ☒ Yes (Submit copy)			

23 Casing and Liner Record (Report all strings set in well)									
Hole Size	Size/ Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No of Sks & Type of Cement	Slurry Vol (Bbl)	Cement Top*	Amount Pulled
26"	20"	94#	0	375'		900 sx		0	None
12 1/4"	9 5/8"	36#	0	2290'		1250 sx		0	None
8 3/4"	7"	23#	0	8999'		925 sx		0	None
6 1/8"	4 1/2"	11.6#	0	12300'		850 sx		0	None

24 Tubing Record									
Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	
2 3/8"	10592'	10592'							

25 Producing Intervals				26 Perforation Record			
Formation	Top	Bottom		Perforated Interval	Size	No. of Holes	Perf Status
A) Strawn	10663'	10902'		11781-11791'		33	CIBP + 12' CMT @ 11760'
B)				11579-11666'		42	CIBP + 35' CMT @ 11530'
C)				10663-10902'		15	Open
D)							

27 Acid/Fracture Treatment, Cement Squeeze, Etc		Amount and Type of Material
Depth Interval		
11781-11791'		Acidz w/750 gal 7 1/2% NEFE HCL Morrow acid
11579-11666'		Acidz w/1250 gal 7 1/2% NEFE HCL Morrow acid
10663-10902'		Acidz w/3000 gal 15% NEFE acid

28 Production- Interval A									
Date First Produced 12/11/08	Test Date 12/13/08	Hours Tested 24	Test Production →	Oil Bbl 0	Gas MCF 56	Water Bbl 0	Oil Gravity Corr API	Gas Gravity	Production Method Flowing
Choke Size 24/64"	Tbg Press Flwg SI 720#	Csg Press N/A	24 Hr Rate →	Oil Bbl	Gas MCF	Water Bbl	Gas Oil Ratio	Well Status	Producing
28a Production- Interval B									
Date First Produced	Test Date	Hours Tested	Test Production →	Oil Bbl	Gas MCF	Water Bbl	Oil Gravity Corr API	Gas Gravity	Production Method
Choke Size	Tbg Press Flwg SI	Csg Press	24 Hr Rate →	Oil Bbl	Gas MCF	Water Bbl	Gas Oil Ratio	Well Status	

ACCEPTED FOR RECORD

DEC 21 2008

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

* See instructions and spaces for additional data on page 2)

Accepted for record - NMOCB

28b Production- Interval C									
Date First Produced	Test Date	Hours Tested	Test Production	Oil Bbl	Gas MCF	Water Bbl	Oil Gravity Corr API	Gas Gravity	Production Method
			→						
Choke Size	Tbg Press Flwg SI	Csg Press	24 Hr Rate	Oil Bbl	Gas MCF	Water Bbl	Gas Oil Ratio	Well Status	
			→						

28c Production- Interval D									
Date First Produced	Test Date	Hours Tested	Test Production	Oil Bbl	Gas MCF	Water Bbl	Oil Gravity Corr API	Gas Gravity	Production Method
			→						
Choke Size	Tbg Press Flwg SI	Csg Press	24 Hr Rate	Oil Bbl	Gas MCF	Water Bbl	Gas Oil Ratio	Well Status	
			→						

29 Disposition of Gas (Solid, used for fuel, vented, etc.)

30 Summary of Porous Zones (include Aquifers)				31 Formation (Log) Markers	
Show all important zones of porosity and contents thereof Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries					
Formation	Top	Bottom	Descriptions Contents, Etc.	Name	Top Measured Depth
Delaware	2322'	4568'		Capitan	376'
Brushy Canyon	4569'	5629'		Delaware	2322'
Bone Spring	5630'	8788'		Brushy Canyon	4569'
Wolfcamp	8789'	10613'		Bone Spring	5630'
Strawn	10614'	11135'		Wolfcamp	8789'
Atoka	11136'	11647'		Strawn	10614'
Morrow	11648'	12300'		Atoka	11136'
				Morrow	11648'
					TD 12300'

32 Additional remarks (include plugging procedure)

33 Indicate which items have been attached by placing a check in the appropriate boxes

☒ Electrical/ Mechanical Logs (1 full set required)	☐ Geologic Report	☐ DST Report	☒ Directional Survey
☐ Sundry Notice for plugging and cement verification	☐ Core Analysis	☐ Other	

34 I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions)*

Name (please print) Stormi Davis Title Production Assistant

Signature  Date 12/17/08

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

OPERATOR: Marbob Energy Corp.
WELL/LEASE: Mule 23 Fed # 1 Sec. 23, T24S, R25E
COUNTY: Eddy Co., New Mexico

**STATE OF NEW MEXICO
DEVIATION REPORT**

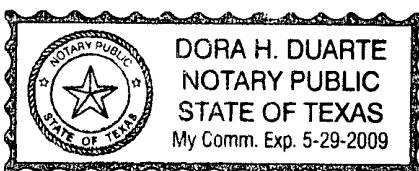
<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
182	1/4		
327	1		
626	3/4		
1,124	1/4		
1,350	1		
1,850	1		
2,100	1		
2,585	3/4		
3,096	2		
3,350	1 3/4		
3,860	1 3/4		
4,370	2		
4,853	1 3/4		
5,361	3/4		
5,869	2 1/2		
6,123	1 1/2		

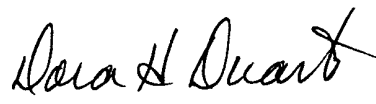
Patriot Drilling, LLC

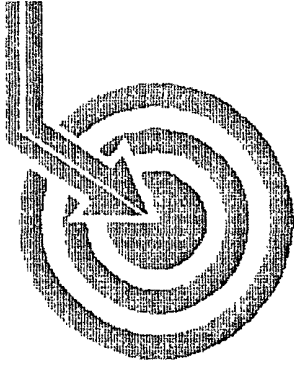

M. Leroy Peterson, Executive Vice-
President

The foregoing instrument was acknowledged before me on this 14th day of October, 2008 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling, LLC.

My Commission Expires: 5/29/2009




Dora H. Duarte
Notary Public for Midland Co., Texas



Scientific Drilling

MARBOB ENERGY

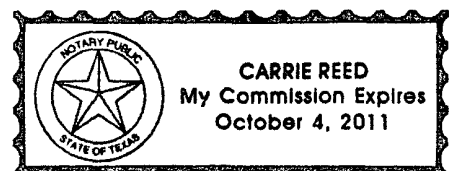
Field: Wildcat
Site: Eddy County, NM
Well: Mule 23 Federal #1
Wellpath: VH - Job #32K0808644
Survey: 08/21/08

This survey is correct to the best of my knowledge
and is supported by actual field data.

.....Lu Hart.....Company Representative

Notorized this date 9th of September, 2008.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific Drilling International Survey Report

Company: MARBOB ENERGY
Field: Wildcat
Site: Eddy County, NM
Well: Mule 23 Federal #1
Wellpath: VH - Job #32K0808644

Date: 09/08/2008 Time: 09:24:55 Page: 1
Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,299.05Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 08/21/08
KSRG 0'-6736'

Start Date: 08/21/2008

Company: Scientific Drilling Internatio
Tool: Keeper, Keeper Gyro

Engineer: Guebara/Williams w/P&M
Tied-to: From Surface

Survey

MD ft	Incl deg	Azlm deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.00	0.00	359.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.24	221.43	100.00	0.04	-0.16	-0.14	0.24	0.21	221.43
200.00	0.23	189.08	200.00	0.02	-0.51	-0.31	0.13	0.60	211.09
300.00	0.70	115.33	300.00	-0.66	-0.97	0.21	0.67	0.99	167.72
400.00	0.67	110.91	399.99	-1.85	-1.44	1.31	0.06	1.95	137.74
500.00	0.46	126.37	499.98	-2.82	-1.89	2.18	0.26	2.88	130.91
600.00	0.32	120.94	599.98	-3.50	-2.27	2.74	0.14	3.56	129.62
700.00	0.36	148.46	699.98	-4.05	-2.68	3.15	0.17	4.13	130.44
800.00	0.10	209.13	799.98	-4.33	-3.03	3.27	0.32	4.45	132.80
900.00	0.17	255.16	899.98	-4.22	-3.14	3.08	0.12	4.40	135.53
1000.00	0.22	212.83	999.98	-4.10	-3.34	2.83	0.15	4.38	139.67
1100.00	0.22	230.54	1099.98	-4.02	-3.62	2.58	0.07	4.45	144.52
1200.00	0.61	179.95	1199.98	-4.20	-4.28	2.43	0.50	4.92	150.35
1300.00	0.71	171.66	1299.97	-4.84	-5.42	2.52	0.14	5.98	155.03
1400.00	1.00	169.55	1399.96	-5.77	-6.89	2.77	0.29	7.43	158.09
1500.00	1.21	162.68	1499.94	-7.09	-8.76	3.25	0.25	9.34	159.67
1600.00	0.63	221.34	1599.93	-7.74	-10.18	3.20	1.03	10.67	162.57
1700.00	0.77	220.10	1699.92	-7.49	-11.11	2.40	0.14	11.36	167.80
1800.00	0.81	214.68	1799.91	-7.29	-12.20	1.57	0.08	12.30	172.69
1900.00	0.86	218.52	1899.90	-7.10	-13.37	0.70	0.08	13.39	177.02
2000.00	0.82	231.14	1999.89	-6.71	-14.41	-0.33	0.19	14.41	181.31
2100.00	1.02	208.30	2099.88	-6.45	-15.64	-1.31	0.41	15.69	184.78
2200.00	0.68	228.07	2199.87	-6.27	-16.82	-2.17	0.44	16.96	187.36
2300.00	0.56	228.27	2299.86	-5.91	-17.54	-2.98	0.12	17.79	189.63
2400.00	0.73	234.68	2399.85	-5.48	-18.23	-3.86	0.18	18.64	191.96
2500.00	0.75	241.14	2499.84	-4.86	-18.92	-4.95	0.09	19.56	194.68
2600.00	0.64	269.95	2599.84	-4.02	-19.24	-6.09	0.36	20.18	197.56
2700.00	1.21	306.12	2699.82	-2.48	-18.61	-7.50	0.79	20.07	201.94
2800.00	1.37	290.07	2799.80	-0.26	-17.58	-9.47	0.39	19.97	208.32
2900.00	1.94	269.53	2899.76	2.40	-17.18	-12.29	0.81	21.13	215.57
3000.00	2.08	267.20	2999.70	5.41	-17.29	-15.79	0.16	23.42	222.42
3100.00	1.69	268.27	3099.64	8.22	-17.42	-19.08	0.39	25.84	227.60
3200.00	1.74	273.12	3199.60	10.85	-17.38	-22.07	0.15	28.09	231.78
3300.00	1.40	267.12	3299.56	13.26	-17.36	-24.81	0.38	30.28	235.01
3400.00	1.37	257.74	3399.53	15.19	-17.68	-27.19	0.23	32.43	236.98
3500.00	1.31	252.10	3499.50	16.87	-18.28	-29.45	0.14	34.66	238.17
3600.00	1.25	250.74	3599.48	18.37	-18.99	-31.57	0.07	36.84	238.97
3700.00	1.36	249.32	3699.45	19.87	-19.77	-33.71	0.11	39.08	239.61
3800.00	1.53	260.92	3799.42	21.68	-20.40	-36.14	0.34	41.50	240.55
3900.00	1.55	259.18	3899.39	23.77	-20.87	-38.78	0.05	44.04	241.72
4000.00	1.83	247.31	3999.34	25.80	-21.74	-41.59	0.45	46.92	242.41
4100.00	1.82	252.07	4099.29	27.87	-22.84	-44.57	0.15	50.08	242.87
4200.00	1.60	244.67	4199.25	29.77	-23.93	-47.34	0.31	53.04	243.19
4300.00	1.45	249.51	4299.21	31.40	-24.97	-49.79	0.20	55.70	243.37
4400.00	1.28	253.36	4399.18	33.00	-25.73	-52.04	0.19	58.06	243.69
4500.00	1.36	255.38	4499.16	34.64	-26.35	-54.26	0.09	60.32	244.10
4600.00	1.42	247.43	4599.13	36.27	-27.12	-56.56	0.20	62.72	244.38
4700.00	1.48	249.00	4699.10	37.87	-28.06	-58.90	0.07	65.25	244.53
4800.00	1.48	246.01	4799.06	39.47	-29.05	-61.29	0.08	67.83	244.64



Scientific Drilling International Survey Report

Company: MARBOB ENERGY
Field: Wildcat
Site: Eddy County, NM
Well: Mule 23 Federal #1
Wellpath: VH - Job #32K0808644

Date: 09/08/2008 Time: 09:24:55 Page: 2
Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,299.05Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

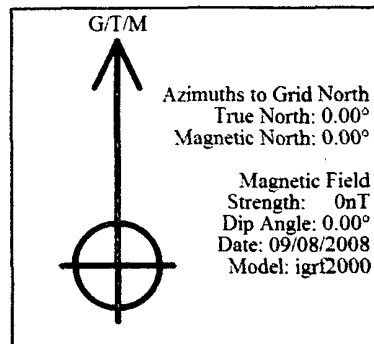
Survey

MD ft	Incl deg	Azlm deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4900.00	1.28	237.99	4899.03	40.79	-30.17	-63.42	0.28	70.23	244.56
5000.00	1.29	227.72	4999.01	41.69	-31.52	-65.20	0.23	72.42	244.20
5100.00	1.17	230.37	5098.98	42.42	-32.92	-66.82	0.13	74.49	243.77
5200.00	1.35	219.27	5198.96	43.00	-34.49	-68.35	0.30	76.56	243.22
5300.00	1.24	218.06	5298.94	43.38	-36.25	-69.76	0.11	78.62	242.54
5400.00	1.27	218.28	5398.91	43.73	-37.97	-71.11	0.03	80.62	241.90
5500.00	1.37	209.74	5498.88	43.92	-39.88	-72.39	0.22	82.65	241.15
5600.00	1.31	212.38	5598.86	44.00	-41.88	-73.60	0.09	84.68	240.36
5700.00	1.24	193.77	5698.83	43.78	-43.90	-74.47	0.42	86.45	239.48
5800.00	1.85	183.65	5798.80	42.81	-46.56	-74.83	0.67	88.13	238.11
5900.00	3.06	182.92	5898.70	40.94	-50.84	-75.07	1.21	90.66	235.89
6000.00	3.44	179.88	5998.54	38.30	-56.51	-75.20	0.42	94.06	233.08
6100.00	3.08	180.66	6098.38	35.56	-62.19	-75.22	0.36	97.60	230.42
6200.00	3.24	172.91	6198.23	32.62	-67.68	-74.90	0.46	100.95	227.90
6300.00	3.10	180.07	6298.08	29.64	-73.19	-74.56	0.42	104.48	225.53
6400.00	2.21	194.26	6397.97	27.84	-77.76	-75.04	1.10	108.06	223.98
6500.00	1.57	199.06	6497.91	27.11	-80.93	-75.96	0.66	110.99	223.19
6600.00	1.30	220.54	6597.88	27.10	-83.08	-77.14	0.60	113.38	222.88
6700.00	1.01	234.77	6697.86	27.70	-84.45	-78.60	0.41	115.37	222.94
6736.00	1.01	234.61	6733.86	27.98	-84.82	-79.12	0.01	115.99	223.01



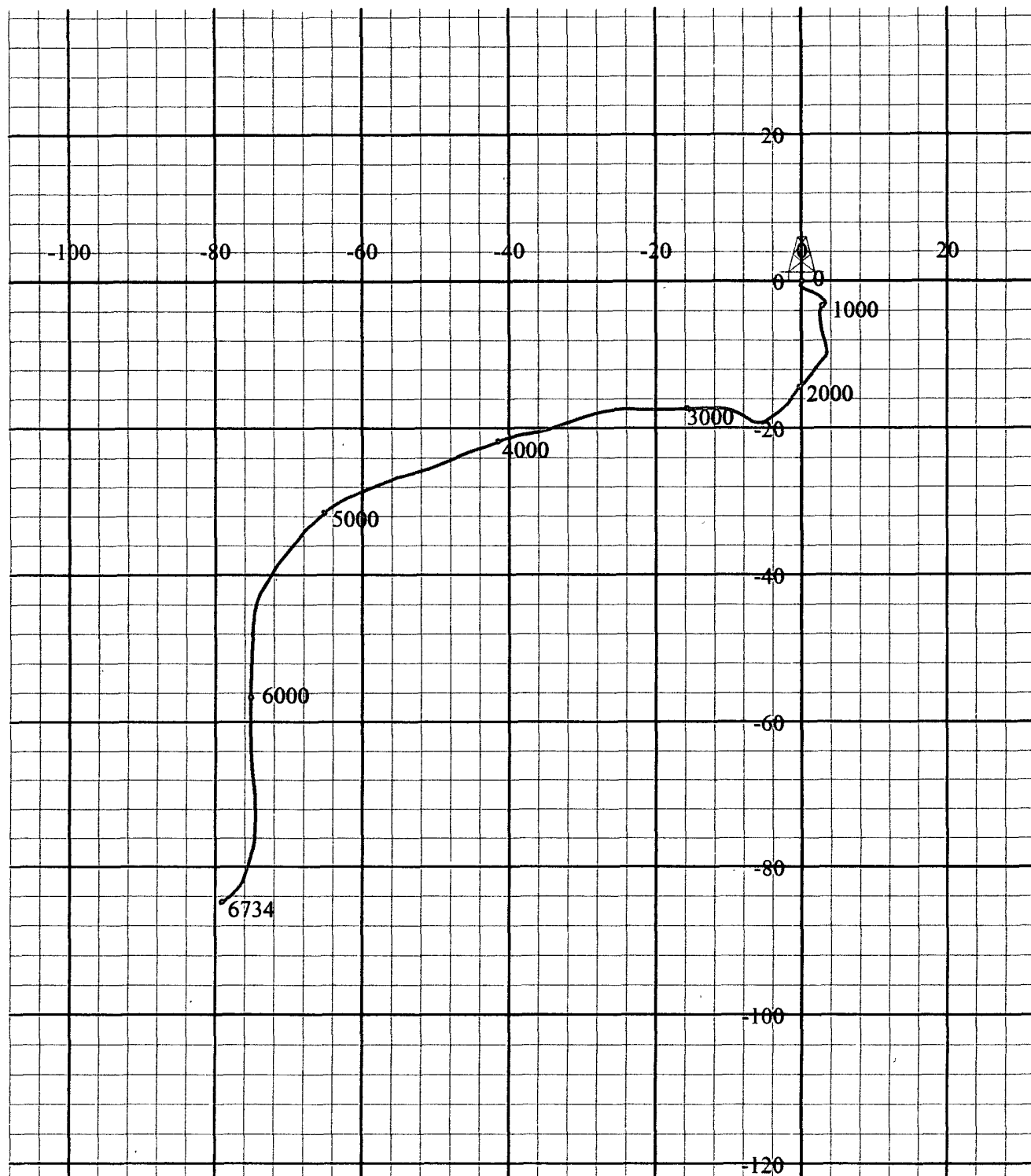
**Scientific
Drilling**

Field: Wildcat
Site: Eddy County, NM
Well: Mule 23 Federal #1
Wellpath: VH - Job #32K0808644
Survey: 08/21/08



West(-)/East(+) [20ft/in]

South(-)/North(+) [20ft/in]



Marbob

Eddy County

Mule 23 #1

Mule 23 #1

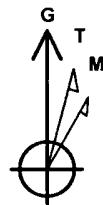
OH

Survey: MWD #1

Pathfinder X & Y Survey Report

17 September, 2008





Azimuths to Grid North
True North: 0.02°
Magnetic North: 8.29°

Magnetic Field
Strength: 48813.9snT
Dip Angle: 60.10°
Date: 2008/08/03
Model: IGRF200510

PATHFINDER

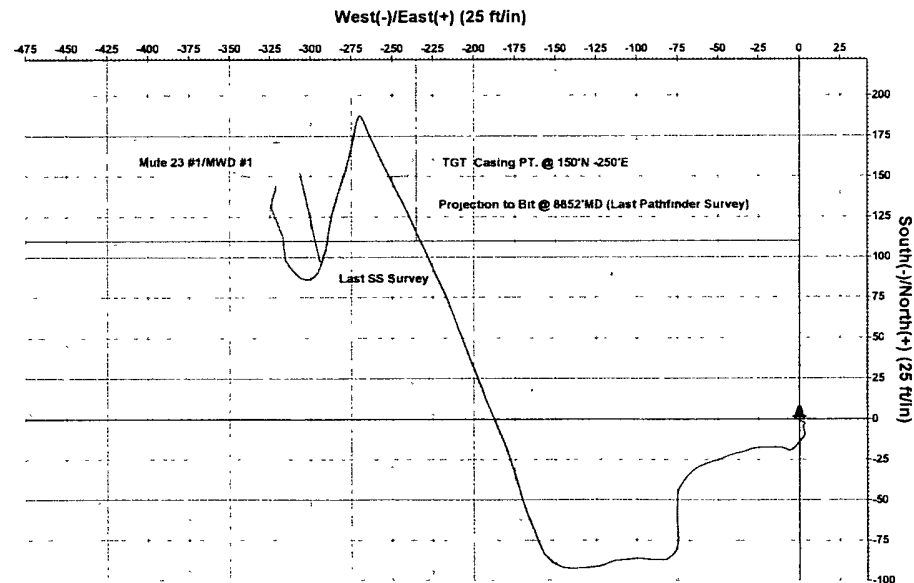
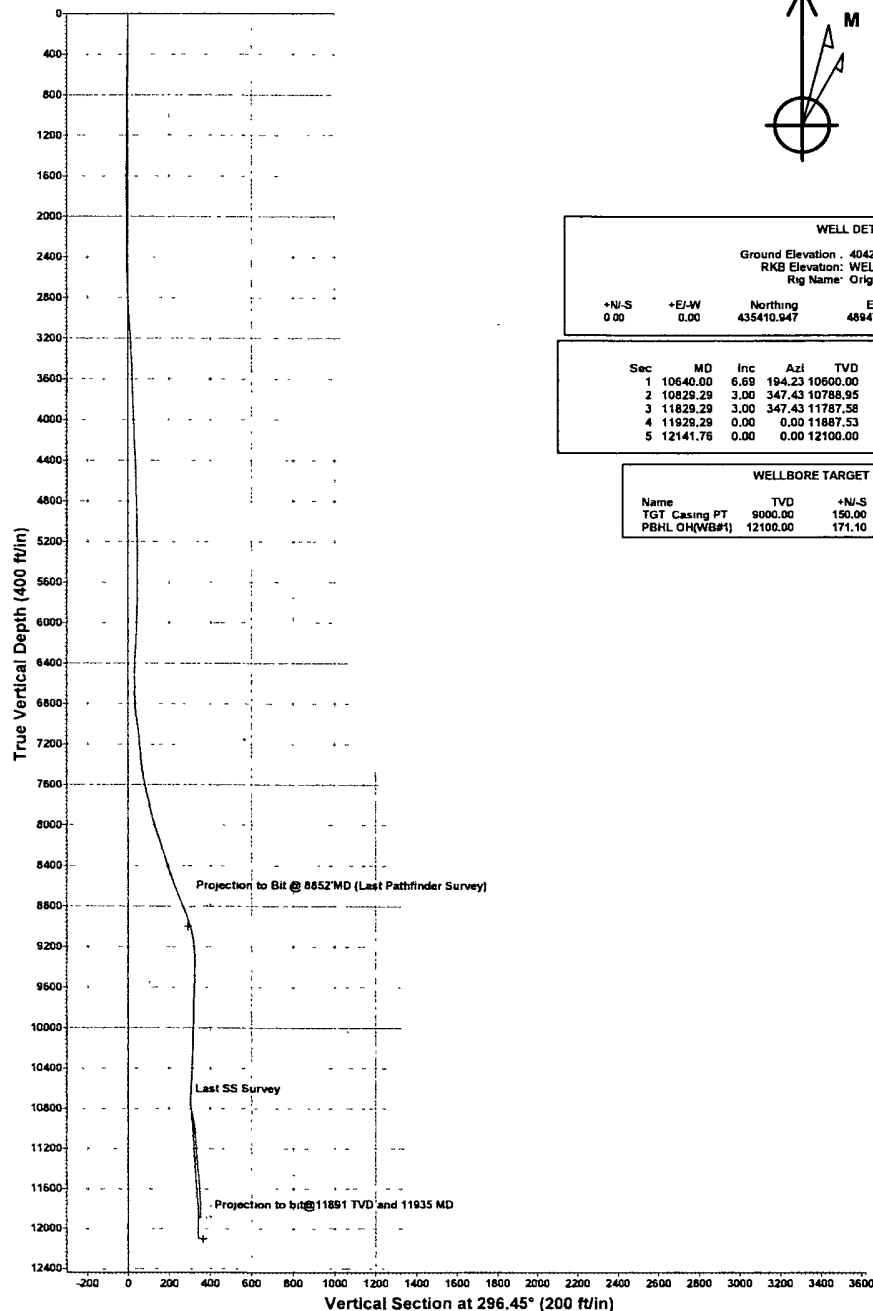
ENERGY SERVICES

Project: Eddy County
Site: Mule 23 #1
Well: Mule 23 #1
Wellbore: OH
Plan: Plan #4 (Mule 23 #1/OH)

WELL DETAILS Mule 23 #1						
Ground Elevation: 4042.00						
RKB Elevation: WELL @ 4042.00R (Original Well Elev)						
Rig Name: Original Well Elev						
+N-S	+E-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	435410.947	489475.700	32° 11' 48.406 N	104° 22' 2.462 W	

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	DLeg	TFace	VSec	Target
1	10640.00	6.69	194.23	10600.00	104.66	-290.66	0.00	0.00	306.88	
2	10829.29	3.00	347.43	10788.95	99.80	-294.46	5.00	171.75	307.66	
3	11829.29	3.00	347.43	11787.58	149.88	-305.87	0.00	0.00	340.61	
4	11929.29	0.00	0.00	11887.53	152.43	-306.44	3.00	180.00	342.26	
5	12141.76	0.00	0.00	12100.00	152.43	-306.44	0.00	0.00	342.26	PBHL OH(WB#1)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N-S	+E-W	Northing	Easting	Shape
TGT Casing PT	9000.00	150.00	-250.00	435560.947	489225.700	Point
PBHL OH(WB#1)	12100.00	171.10	-321.18	435582.047	489154.520	Point



PROJECT DETAILS Eddy County
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

Plan Plan #4 (Mule 23 #1/OH)	
Created By: Nate Bingham	Date: 14 40, September 17 2008
Checked: _____	Date: _____

Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Mule 23 #1
Well: Mule 23 #1
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Mule 23 #1
TVD Reference: WELL @ 4042.00ft (Original Well Elev)
MD Reference: WELL @ 4042.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Project	Eddy County
Map System:	US State Plane 1927 (Exact solution)
Geo Datum:	NAD 1927 (NADCON CONUS)
Map Zone:	New Mexico East 3001
System Datum:	Mean Sea Level

Site Mule 23 #1

Site Position:
From: Map
Position Uncertainty: 0.00 ft

Northing: 435,410.947 ft
Easting: 489,475.700 ft
Slot Radius: "

Latitude: 32° 11' 49.406 N
Longitude: 104° 22' 2.482 W
Grid Convergence: -0.02 °

Well Mule 23 #1

Well Position +N/-S 0.00 ft
 +E/-W 0.00 ft
Position Uncertainty 0.00 ft

Northing: 435,410.947 ft
Easting: 489,475.700 ft
Wellhead Elevation: ft

Latitude: 32° 11' 49.406 N
Longitude: 104° 22' 2.482 W
Ground Level: 4,042.00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2008/08/03	8.27	60.10	48,814

Design OH

Audit Notes:

Version: 1.0
Phase: ACTUAL
Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	299.05

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Mule 23 #1
Well: Mule 23 #1
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Mule 23 #1
TVD Reference: WELL @ 4042.00ft (Original Well Elev)
MD Reference: WELL @ 4042.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Survey Program **Date** 2008/09/17

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.00	6,736.00	Gyro (OH)	MWD	MWD - Standard
6,789.00	11,935.00	MWD #1 (OH)	MWD	MWD - Standard

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
6,736.00	1.01	234.61	6,733.86	2,691.86	-84.82	-79.12	27.98	0.00	435,326.13	489,396.58
6,757.00	1.67	241.82	6,754.85	2,712.85	-85.07	-79.54	28.22	3.24	435,325.87	489,396.16
6,789.82	2.11	233.32	6,787.65	2,745.65	-85.66	-80.45	28.73	1.59	435,325.29	489,395.25
6,820.00	1.32	228.08	6,817.82	2,775.82	-86.22	-81.15	29.07	2.67	435,324.72	489,394.55
6,852.00	1.76	250.57	6,849.81	2,807.81	-86.63	-81.89	29.52	2.31	435,324.31	489,393.81
6,884.00	3.87	266.62	6,881.77	2,839.77	-86.86	-83.43	30.76	6.98	435,324.09	489,392.27
6,916.00	5.89	272.22	6,913.65	2,871.65	-86.86	-86.15	33.13	6.48	435,324.09	489,389.55
6,947.00	6.33	272.90	6,944.47	2,902.47	-86.71	-89.44	36.09	1.44	435,324.23	489,386.26
6,979.00	5.54	272.80	6,976.30	2,934.30	-86.55	-92.75	39.06	2.47	435,324.40	489,382.95
7,011.00	5.28	273.16	7,008.16	2,966.16	-86.39	-95.76	41.77	0.82	435,324.56	489,379.94
7,043.00	4.48	271.74	7,040.04	2,998.04	-86.27	-98.48	44.20	2.53	435,324.67	489,377.22
7,075.00	3.25	268.88	7,071.97	3,029.97	-86.25	-100.64	46.10	3.89	435,324.69	489,375.06
7,106.00	3.08	262.44	7,102.92	3,060.92	-86.38	-102.34	47.52	1.27	435,324.57	489,373.36
7,138.00	3.08	262.19	7,134.88	3,092.88	-86.61	-104.05	48.90	0.04	435,324.34	489,371.65
7,170.00	3.08	263.28	7,166.83	3,124.83	-86.83	-105.75	50.29	0.18	435,324.12	489,369.95
7,202.00	3.17	264.31	7,198.78	3,156.78	-87.01	-107.49	51.71	0.33	435,323.93	489,368.21
7,234.00	3.17	263.83	7,230.73	3,188.73	-87.20	-109.25	53.16	0.08	435,323.75	489,366.45
7,265.00	3.08	264.66	7,261.69	3,219.69	-87.37	-110.93	54.55	0.32	435,323.58	489,364.77
7,297.00	3.17	262.98	7,293.64	3,251.64	-87.56	-112.66	55.97	0.40	435,323.39	489,363.04
7,329.00	3.17	255.59	7,325.59	3,283.59	-87.88	-114.40	57.33	1.28	435,323.06	489,361.30
7,361.00	3.69	243.13	7,357.53	3,315.53	-88.57	-116.17	58.55	2.83	435,322.38	489,359.53

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Mule 23 #1
Well: Mule 23 #1
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Mule 23 #1
TVD Reference: WELL @ 4042.00ft (Original Well Elev)
MD Reference: WELL @ 4042.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (%/100ft)	Northing (ft)	Easting (ft)
7,393.00	4.04	243.61	7,389.46	3,347.46	-89.54	-118.10	59.77	1.10	435,321.41	489,357.60
7,425.00	4.66	249.87	7,421.37	3,379.37	-90.48	-120.33	61.26	2.44	435,320.46	489,355.37
7,456.00	5.36	260.14	7,452.25	3,410.25	-91.17	-122.94	63.21	3.66	435,319.78	489,352.76
7,488.00	5.89	263.89	7,484.10	3,442.10	-91.60	-126.04	65.71	2.01	435,319.35	489,349.66
7,520.00	5.98	263.92	7,515.93	3,473.93	-91.95	-129.33	68.42	0.28	435,319.00	489,346.37
7,552.00	5.98	264.66	7,547.75	3,505.75	-92.28	-132.65	71.16	0.24	435,318.67	489,343.05
7,583.00	6.42	268.09	7,578.57	3,536.57	-92.49	-135.99	73.97	1.85	435,318.46	489,339.71
7,615.00	6.51	269.91	7,610.37	3,568.37	-92.55	-139.59	77.09	0.70	435,318.40	489,336.11
7,647.00	5.98	278.30	7,642.18	3,600.18	-92.31	-143.06	80.24	3.29	435,318.64	489,332.64
7,679.00	6.16	288.47	7,674.00	3,632.00	-91.53	-146.34	83.48	3.40	435,319.42	489,329.36
7,711.00	6.86	303.11	7,705.80	3,663.80	-89.94	-149.56	87.08	5.61	435,321.01	489,326.14
7,742.00	7.65	308.43	7,736.55	3,694.55	-87.65	-152.73	90.96	3.34	435,323.30	489,322.97
7,774.00	7.65	319.02	7,768.26	3,726.26	-84.71	-155.80	95.06	4.40	435,326.23	489,319.90
7,806.00	7.56	333.84	7,799.99	3,757.99	-81.22	-158.12	98.79	6.12	435,329.73	489,317.58
7,838.00	8.00	338.14	7,831.69	3,789.69	-77.26	-159.88	102.25	2.28	435,333.69	489,315.82
7,869.00	8.53	339.44	7,862.37	3,820.37	-73.10	-161.49	105.68	1.81	435,337.84	489,314.21
7,901.00	9.23	338.95	7,893.99	3,851.99	-68.49	-163.25	109.45	2.20	435,342.46	489,312.45
7,933.00	10.20	336.90	7,925.53	3,883.53	-63.49	-165.28	113.66	3.22	435,347.46	489,310.42
7,965.00	11.70	339.33	7,956.94	3,914.94	-57.84	-167.54	118.37	4.90	435,353.10	489,308.16
7,997.00	12.84	343.00	7,988.21	3,946.21	-51.41	-169.72	123.41	4.31	435,359.54	489,305.98
8,028.00	12.84	343.71	8,018.44	3,976.44	-44.81	-171.69	128.34	0.51	435,366.14	489,304.01
8,060.00	12.49	343.37	8,049.66	4,007.66	-38.08	-173.68	133.34	1.12	435,372.87	489,302.02
8,092.00	12.13	343.74	8,080.92	4,038.92	-31.54	-175.61	138.21	1.15	435,379.41	489,300.09
8,124.00	12.13	342.44	8,112.21	4,070.21	-25.10	-177.57	143.04	0.85	435,385.84	489,298.13
8,155.00	11.96	340.92	8,142.53	4,100.53	-18.96	-179.60	147.80	1.16	435,391.99	489,296.10
8,187.00	12.57	337.04	8,173.80	4,131.80	-12.62	-182.04	153.01	3.20	435,398.33	489,293.66
8,219.00	12.31	336.95	8,205.04	4,163.04	-6.28	-184.74	158.45	0.81	435,404.67	489,290.96

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Mule 23 #1
Well: Mule 23 #1
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Mule 23 #1
TVD Reference: WELL @ 4042.00ft (Original Well Elev)
MD Reference: WELL @ 4042.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
8,251.00	12.05	336.37	8,236.32	4,194.32	-0.08	-187.41	163.80	0.90	435,410.87	489,288.29
8,283.00	12.31	338.03	8,267.60	4,225.60	6.15	-190.03	169.11	1.36	435,417.09	489,285.67
8,315.00	11.87	339.25	8,298.89	4,256.89	12.39	-192.47	174.27	1.59	435,423.33	489,283.23
8,346.00	11.43	338.71	8,329.26	4,287.26	18.23	-194.72	179.07	1.46	435,429.18	489,280.98
8,378.00	10.90	338.25	8,360.65	4,318.65	24.00	-196.99	183.86	1.68	435,434.94	489,278.71
8,410.00	10.90	338.92	8,392.07	4,350.07	29.63	-199.20	188.52	0.40	435,440.58	489,276.50
8,441.00	12.31	338.72	8,422.44	4,380.44	35.44	-201.45	193.32	4.55	435,446.39	489,274.25
8,473.00	13.19	339.05	8,453.65	4,411.65	42.03	-203.99	198.74	2.76	435,452.98	489,271.71
8,504.00	13.63	340.03	8,483.80	4,441.80	48.77	-206.51	204.21	1.60	435,459.71	489,269.19
8,535.00	14.42	339.53	8,513.88	4,471.88	55.82	-209.10	209.90	2.58	435,466.76	489,266.60
8,567.00	14.68	339.52	8,544.85	4,502.85	63.35	-211.92	216.02	0.81	435,474.29	489,263.78
8,598.00	14.51	338.91	8,574.85	4,532.85	70.65	-214.69	221.99	0.74	435,481.60	489,261.01
8,629.00	14.60	335.57	8,604.86	4,562.86	77.83	-217.70	228.11	2.72	435,488.78	489,258.00
8,661.00	14.42	335.34	8,635.84	4,593.84	85.12	-221.03	234.56	0.59	435,496.07	489,254.67
8,693.00	14.25	335.70	8,666.84	4,624.84	92.34	-224.31	240.93	0.60	435,503.28	489,251.39
8,725.00	14.33	336.05	8,697.85	4,655.85	99.54	-227.54	247.25	0.37	435,510.49	489,248.16
8,757.00	14.42	335.95	8,728.85	4,686.85	106.80	-230.77	253.60	0.29	435,517.75	489,244.93
8,788.00	14.42	334.98	8,758.87	4,716.87	113.82	-233.98	259.81	0.78	435,524.77	489,241.72
8,820.00	13.98	335.32	8,789.89	4,747.89	120.95	-237.28	266.16	1.40	435,531.89	489,238.42
8,852.00	13.63	334.38	8,820.97	4,778.97	127.86	-240.52	272.35	1.30	435,538.81	489,235.18
Projection to Bit @ 8852' MD (Last Pathfinder Survey)										
8,884.00	13.28	333.27	8,852.09	4,810.09	134.54	-243.81	278.46	1.36	435,545.49	489,231.89
8,915.00	13.01	333.21	8,882.28	4,840.28	140.84	-246.98	284.30	0.87	435,551.78	489,228.72
8,947.00	12.40	334.08	8,913.50	4,871.50	147.14	-250.11	290.09	2.00	435,558.09	489,225.59
8,954.00	12.22	334.78	8,920.33	4,878.33	148.49	-250.75	291.31	3.34	435,559.44	489,224.95
9,000.00	11.52	333.52	8,965.35	4,923.35	157.00	-254.87	299.05	1.62	435,567.95	489,220.83

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Mule 23 #1
Well: Mule 23 #1
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Mule 23 #1
TVD Reference: WELL @ 4042.00ft (Original Well Elev)
MD Reference: WELL @ 4042.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
9,033.17	10.34	333.90	8,997.92	4,955.92	162.64	-257.66	304.22	3.58	435,573.59	489,218.04
TGT Casing PT. @ 150°N -250°E										
9,200.00	4.40	338.91	9,163.30	5,121.30	182.07	-266.55	321.43	3.58	435,593.02	489,209.15
9,400.00	1.32	209.75	9,363.12	5,321.12	187.23	-270.46	327.35	2.67	435,598.18	489,205.24
9,600.00	3.08	190.33	9,562.97	5,520.97	179.95	-272.57	325.65	0.94	435,590.89	489,203.13
9,800.00	4.04	190.87	9,762.58	5,720.58	167.74	-274.86	321.73	0.48	435,578.69	489,200.84
10,000.00	4.04	198.02	9,962.08	5,920.08	154.12	-278.37	318.18	0.25	435,565.07	489,197.33
10,200.00	4.40	198.67	10,161.54	6,119.54	140.15	-283.00	315.45	0.18	435,551.10	489,192.70
10,400.00	4.04	192.64	10,361.00	6,319.00	126.01	-287.00	312.08	0.29	435,536.96	489,188.70
10,600.00	5.89	187.32	10,560.24	6,518.24	108.96	-289.85	306.29	0.95	435,519.90	489,185.85
10,640.00	6.69	194.23	10,600.00	6,558.00	104.66	-290.68	304.94	2.75	435,515.61	489,185.02
Last SS Survey										
10,648.00	6.86	195.41	10,607.95	6,565.95	103.75	-290.92	304.70	2.75	435,514.70	489,184.78
10,657.00	7.03	197.35	10,616.88	6,574.88	102.71	-291.23	304.47	3.22	435,513.65	489,184.47
10,688.00	7.12	199.51	10,647.64	6,605.64	99.08	-292.44	303.76	0.91	435,510.03	489,183.26
10,720.00	6.95	194.59	10,679.40	6,637.40	95.34	-293.59	302.95	1.96	435,506.29	489,182.11
10,751.00	6.68	205.55	10,710.19	6,668.19	91.90	-294.84	302.37	4.28	435,502.85	489,180.86
10,783.00	5.80	220.29	10,742.00	6,700.00	88.99	-296.69	302.57	5.69	435,499.93	489,179.01
10,815.00	5.10	235.95	10,773.85	6,731.85	86.96	-298.91	303.53	5.12	435,497.90	489,176.79
10,846.00	5.10	268.87	10,804.74	6,762.74	86.16	-301.43	305.35	9.31	435,497.11	489,174.27
10,878.00	5.80	287.12	10,836.60	6,794.60	86.61	-304.40	308.16	5.81	435,497.55	489,171.30
10,910.00	5.36	308.96	10,868.45	6,826.45	88.02	-307.11	311.21	6.73	435,498.97	489,168.59
10,941.00	5.45	319.67	10,899.31	6,857.31	90.05	-309.19	314.02	3.26	435,501.00	489,166.51
10,973.00	5.45	320.79	10,931.17	6,889.17	92.39	-311.13	316.85	0.33	435,503.34	489,164.57
11,005.00	5.45	319.76	10,963.02	6,921.02	94.73	-313.07	319.68	0.31	435,505.68	489,162.63
11,036.00	4.66	328.76	10,993.90	6,951.90	96.93	-314.68	322.15	3.60	435,507.88	489,161.02
11,068.00	4.31	348.94	11,025.81	6,983.81	99.22	-315.58	324.06	5.02	435,510.17	489,160.12

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Mule 23 #1
Well: Mule 23 #1
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Mule 23 #1
TVD Reference: WELL @ 4042.00ft (Original Well Elev)
MD Reference: WELL @ 4042.00ft (Original Well Elev)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
11,100.00	3.69	355.78	11,057.73	7,015.73	101.43	-315.89	325.40	2.44	435,512.37	489,159.81
11,131.00	3.61	353.87	11,088.66	7,046.66	103.39	-316.07	326.51	0.47	435,514.34	489,159.63
11,163.00	3.25	353.29	11,120.61	7,078.61	105.30	-316.28	327.62	1.13	435,516.24	489,159.42
11,195.00	3.08	354.50	11,152.56	7,110.56	107.05	-316.47	328.64	0.57	435,518.00	489,159.23
11,226.00	2.73	355.13	11,183.52	7,141.52	108.62	-316.61	329.52	1.13	435,519.56	489,159.09
11,258.00	2.73	352.14	11,215.48	7,173.48	110.13	-316.78	330.40	0.44	435,521.08	489,158.92
11,299.00	2.73	352.28	11,256.44	7,214.44	112.07	-317.04	331.57	0.02	435,523.01	489,158.66
11,330.00	3.69	342.37	11,287.39	7,245.39	113.75	-317.44	332.74	3.57	435,524.69	489,158.26
11,394.00	4.13	335.68	11,351.24	7,309.24	117.81	-319.02	336.09	0.99	435,528.76	489,156.68
11,457.00	3.43	339.41	11,414.10	7,372.10	121.64	-320.61	339.35	1.18	435,532.59	489,155.09
11,520.00	3.43	338.76	11,476.99	7,434.99	125.16	-321.96	342.23	0.06	435,536.11	489,153.74
11,583.00	3.08	336.83	11,539.89	7,497.89	128.48	-323.31	345.02	0.58	435,539.42	489,152.39
11,647.00	1.49	355.86	11,603.83	7,561.83	130.89	-324.05	346.83	2.72	435,541.83	489,151.65
11,710.00	2.73	7.10	11,666.79	7,624.79	133.19	-323.92	347.84	2.07	435,544.14	489,151.78
11,774.00	2.55	11.67	11,730.72	7,688.72	136.10	-323.44	348.84	0.43	435,547.05	489,152.26
11,838.00	2.37	20.46	11,794.66	7,752.66	138.73	-322.69	349.46	0.65	435,549.68	489,153.01
11,869.00	3.52	13.51	11,825.62	7,783.62	140.26	-322.25	349.81	3.88	435,551.21	489,153.45
11,935.00	3.52	13.51	11,891.50	7,849.50	144.20	-321.30	350.90	0.00	435,555.15	489,154.40

PBHL OH(WB#1)

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Mule 23 #1
Well: Mule 23 #1
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Mule 23 #1
TVD Reference: WELL @ 4042.00ft (Original Well Elev)
MD Reference: WELL @ 4042.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL OH(WB#1) - survey misses by 210.23ft at 11935.00ft MD (11891.50 TVD, 144.20 N, -321.30 E) - Point	0.00	360.00	12,100.00	171.10	-321.18	435,582.047	489,154.520	32° 11' 51.098 N	104° 22' 6.221 W
TGT Casing PT. @ 1 - survey misses by 14.91ft at 9032.42ft MD (8997.18 TVD, 162.52 N, -257.60 E) - Point	0.00	360.00	9,000.00	150.00	-250.00	435,560.947	489,225.700	32° 11' 50.890 N	104° 22' 5.393 W

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,852.00	8,820.97	127.86	-240.52	Projection to Bit @ 8852'MD (Last Pathfinder Survey)
10,640.00	10,600.00	104.66	-290.68	Last SS Survey

Checked By: _____ Approved By: _____ Date: _____